Dunedin Central City Schools Cluster - A Precinct approach to Safety

Glen Koorey, Principal & Senior Transportation Engineer, ViaStrada Ltd
Hjarne Poulsen, Transport Engineering & Road Safety Team Leader, Dunedin CC

Trafinz Conference, Wellington, November 2018

VIASTRADA
TRANSPORT PLANNING AND DESIGN

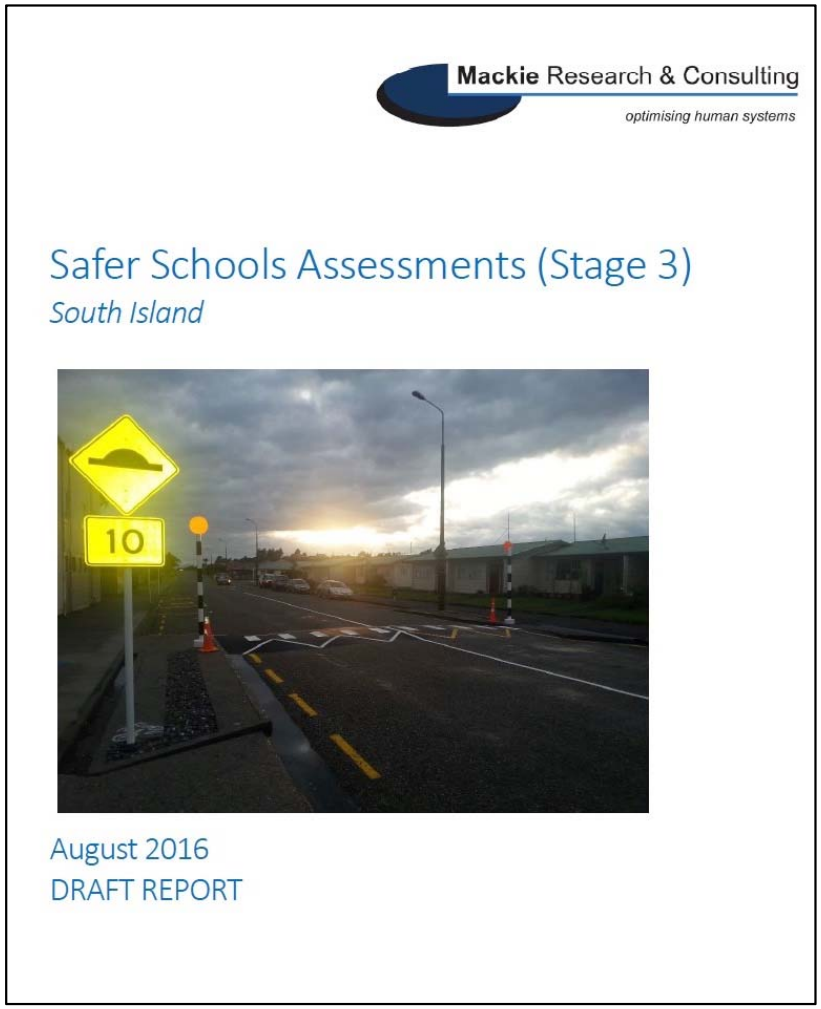
dcm URBAN

DUNEDIN CITY COUNCIL

Motivation

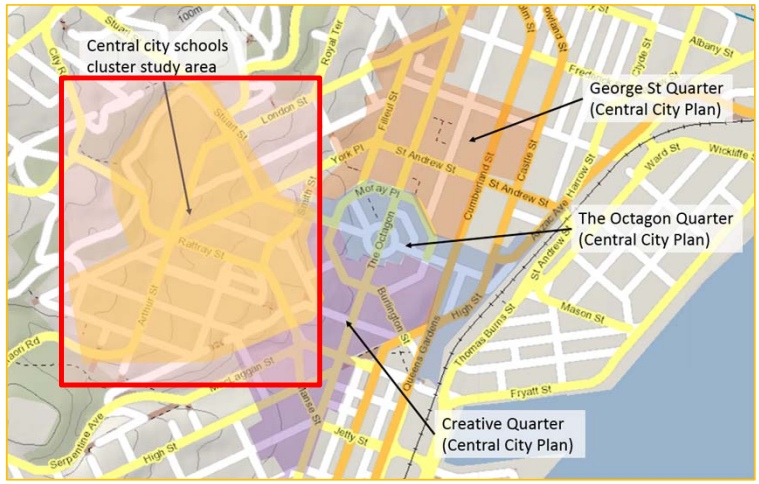
- Road safety risk assessment
  - Desktop comparison of all NZ schools
- Dunedin central cluster (2700 pupils):
  - St Joseph's Cath. Sch: High risk
  - Arthur Street School: High risk
  - Otago Girls High: Medium-High risk
  - Kavanagh College: Medium-High risk
  - Otago Boys High: Medium-High risk
- Ongoing concerns voiced by schools
- High parking demands
  - Schools, residents and commuters

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

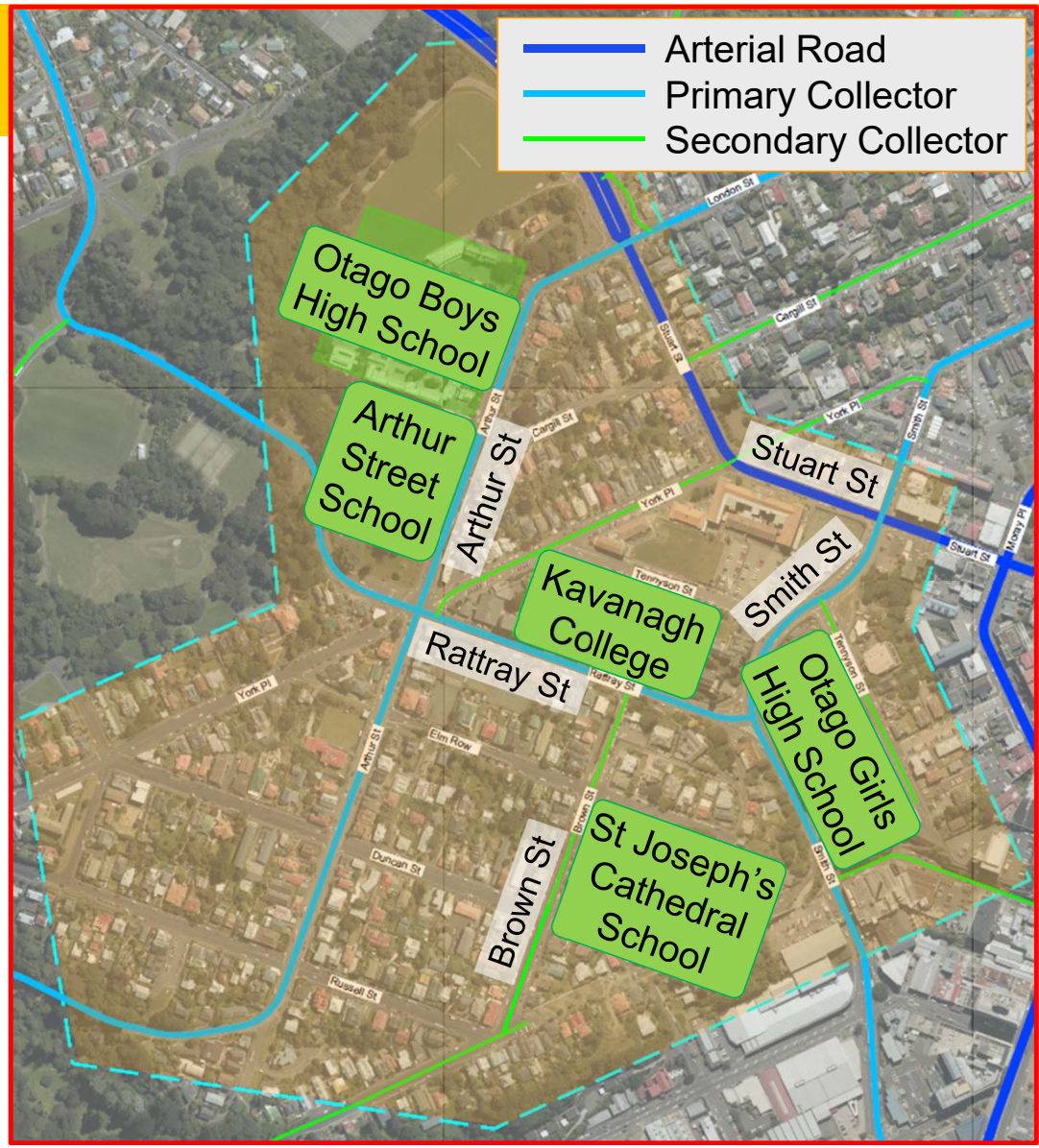


Background

- Dunedin City Council commissioned ViaStrada & DCM Urban to "*develop an area-wide approach to addressing road safety and parking issues around five central city schools*"



VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL



Project process

- Objectives:
  - *Aim 1: determine the road safety (and other) issues*
  - *Aim 2: develop a range of pragmatic concept designs*

September	October	November	December	February	Feb - June
• Data & stakeholder engagem't	• Options assessm't	• Concept plans	• Public info /feedback	• Report to DCC	• Implement 'quick wins'

2017 2018

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Fieldwork/Data Collection

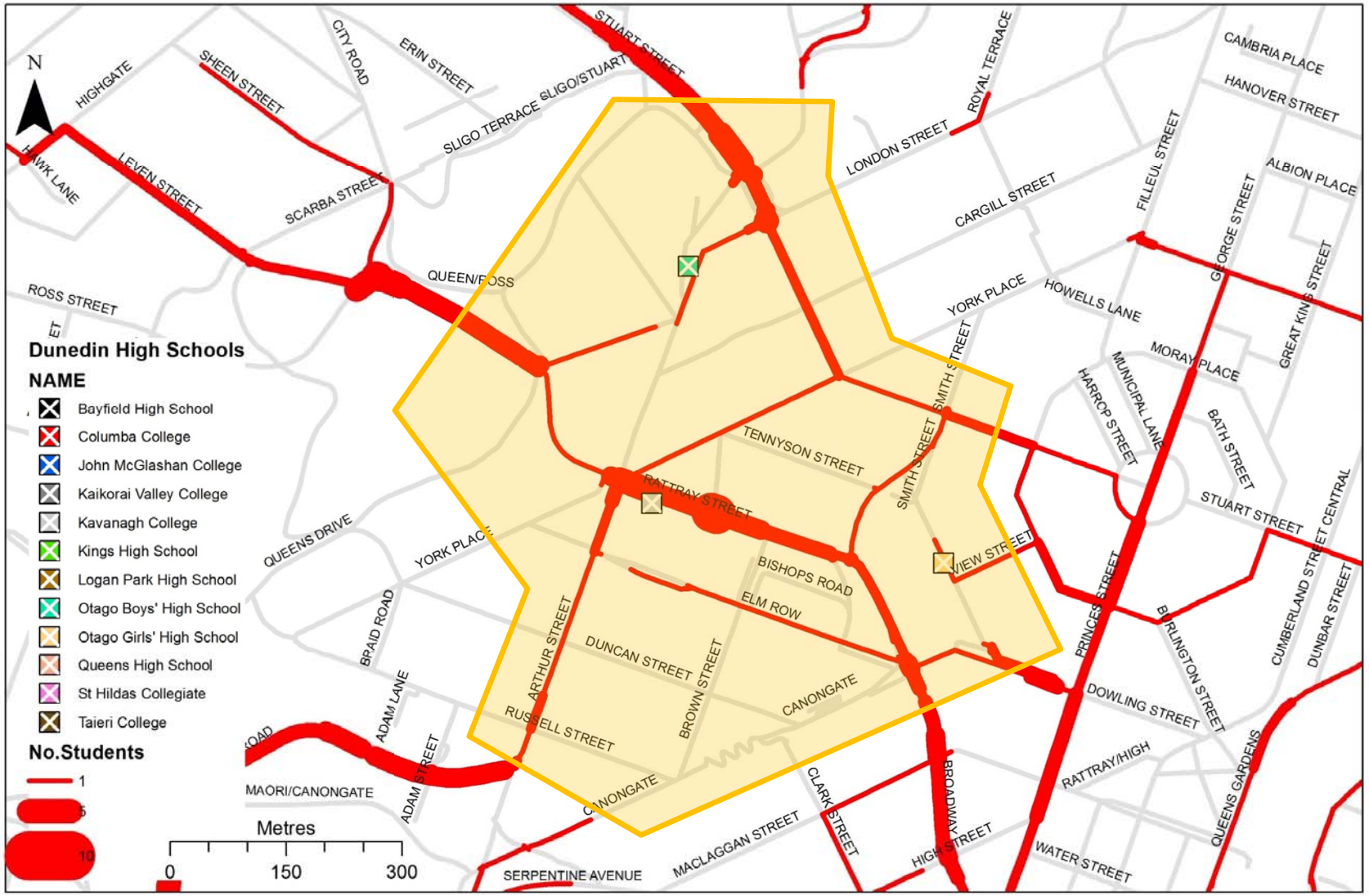
- Background info
  - Crashes / Road risk ratings
  - Otago Uni BEATS study
  - DCC Parking study
  - ORC school bus routes
- Field data
  - Speed/volume surveys
  - Parking occupancy
  - School student surveys

- Site visits
  - Photos/videos
  - Traffic observations
  - School principal discussions
  - Other stakeholder interviews (Police, parking unit, bus company)

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

BEATS Study
Built Environment and Active Transport to School

Routes rated as unsafe by students from drawn map: Centre City



VIASTRADA

Speed & volumes

- 85th percentile AM/PM
- $V_{85\%}$ > 48 km/h:
- High speed on key through routes
  - Arthur, Stuart, Rattray
  - Combined with high pedestrian numbers
- Difficulty stopping safely
  - e.g. Rattray St zebra crossing downhill

Student Survey

- Data from 4 schools (Arthur St, OGH, St. Josephs, Kavanagh)
- Coded by issue
  - H (hit by car) and X (crash driving) fortunately not significant

Codes to use on the map:

C – I have problems ***crossing the road*** here

H – I have been ***hit by a car*** while travelling here

N – I have had a ***near-miss with a car*** here

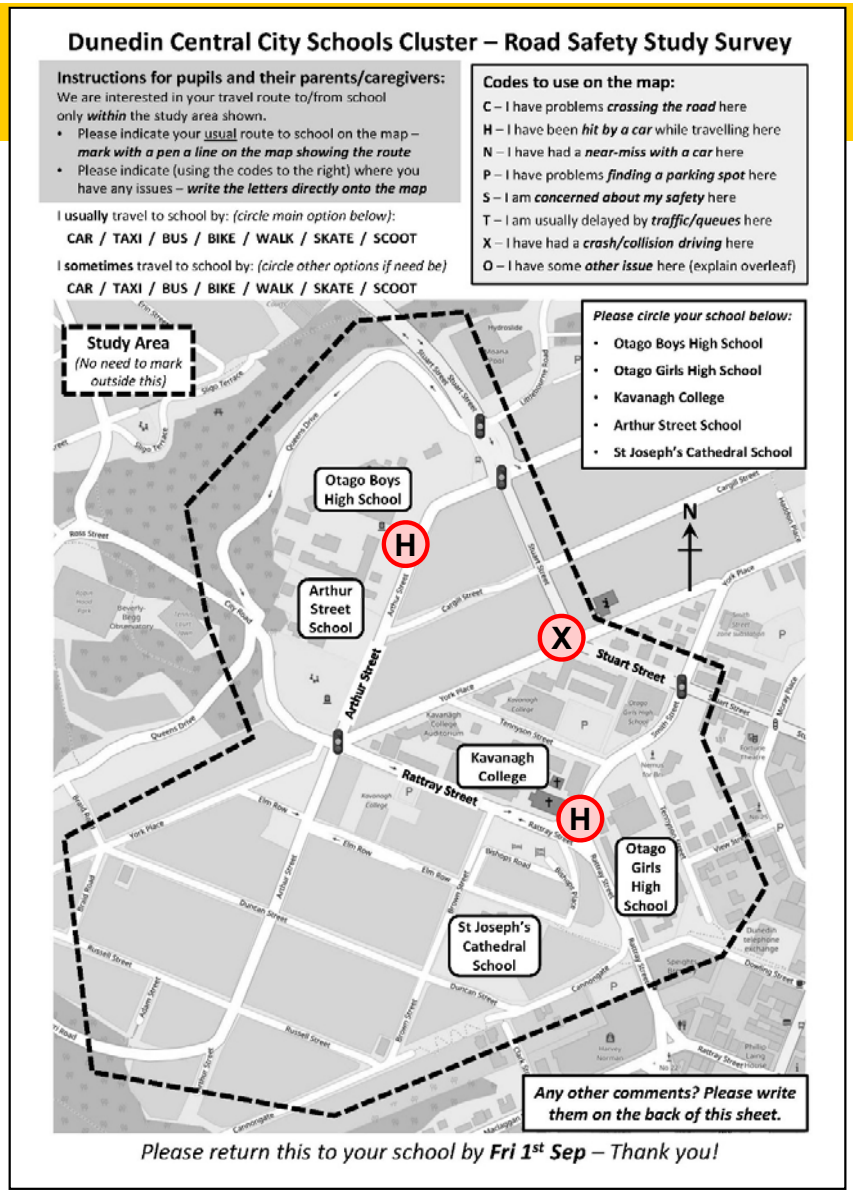
P – I have problems ***finding a parking spot*** here

S – I am ***concerned about my safety*** here

T – I am usually delayed by ***traffic/queues*** here

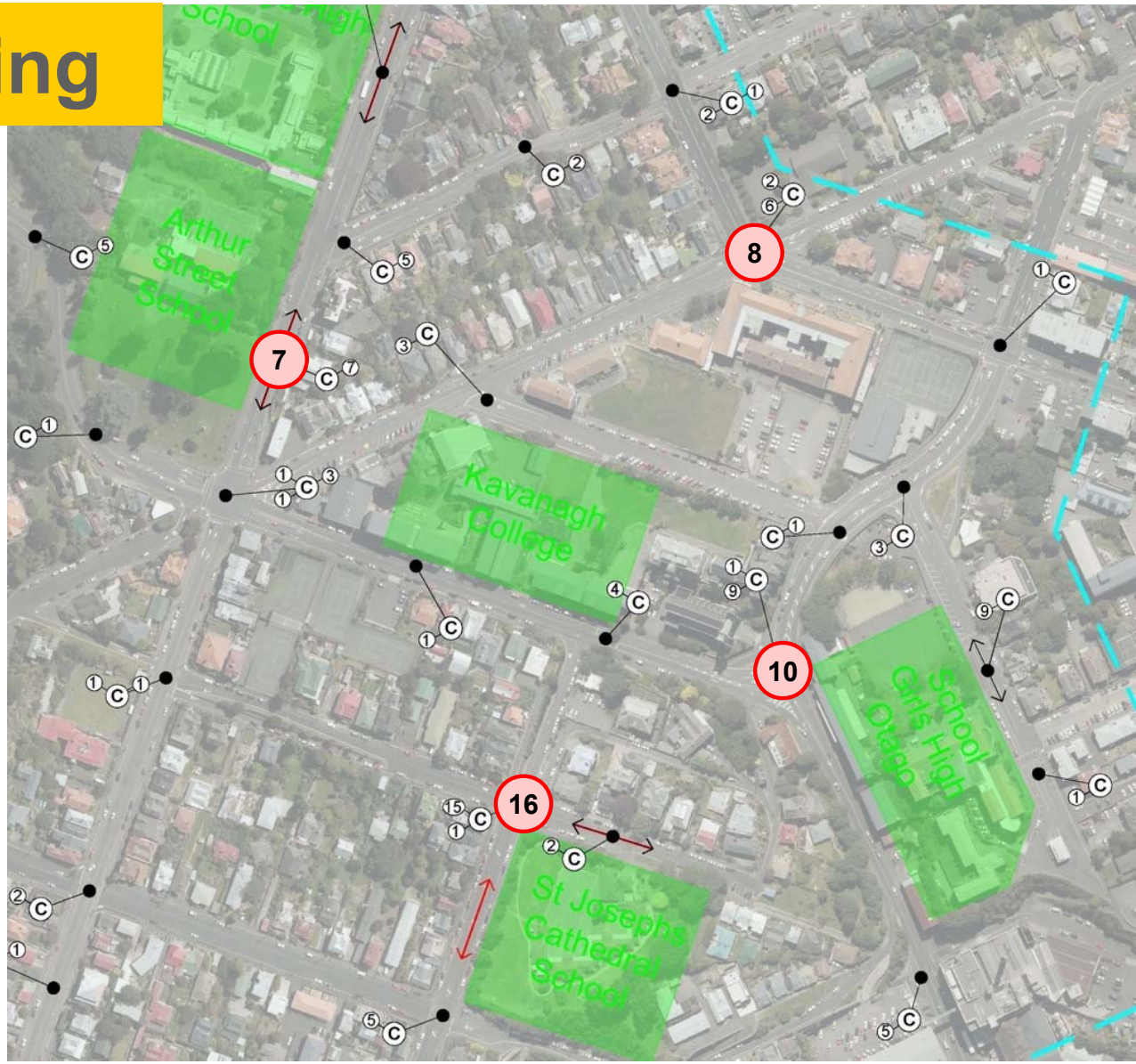
X – I have had a ***crash/collision driving*** here

O – I have some ***other issue*** here (explain overleaf)



C: Problems crossing

- Most difficult intersections:
  - Rattray / Smith
  - Stuart / York
  - Elm / Brown
- Most difficult midblocks:
  - Arthur (N of Rattray)



VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Combined picture

- Able to be split by:
  - Problem type
  - School respondents

Codes to use on the map:

C – I have problems ***crossing the road*** here

H – I have been ***hit by a car*** while travelling here

N – I have had a ***near-miss with a car*** here

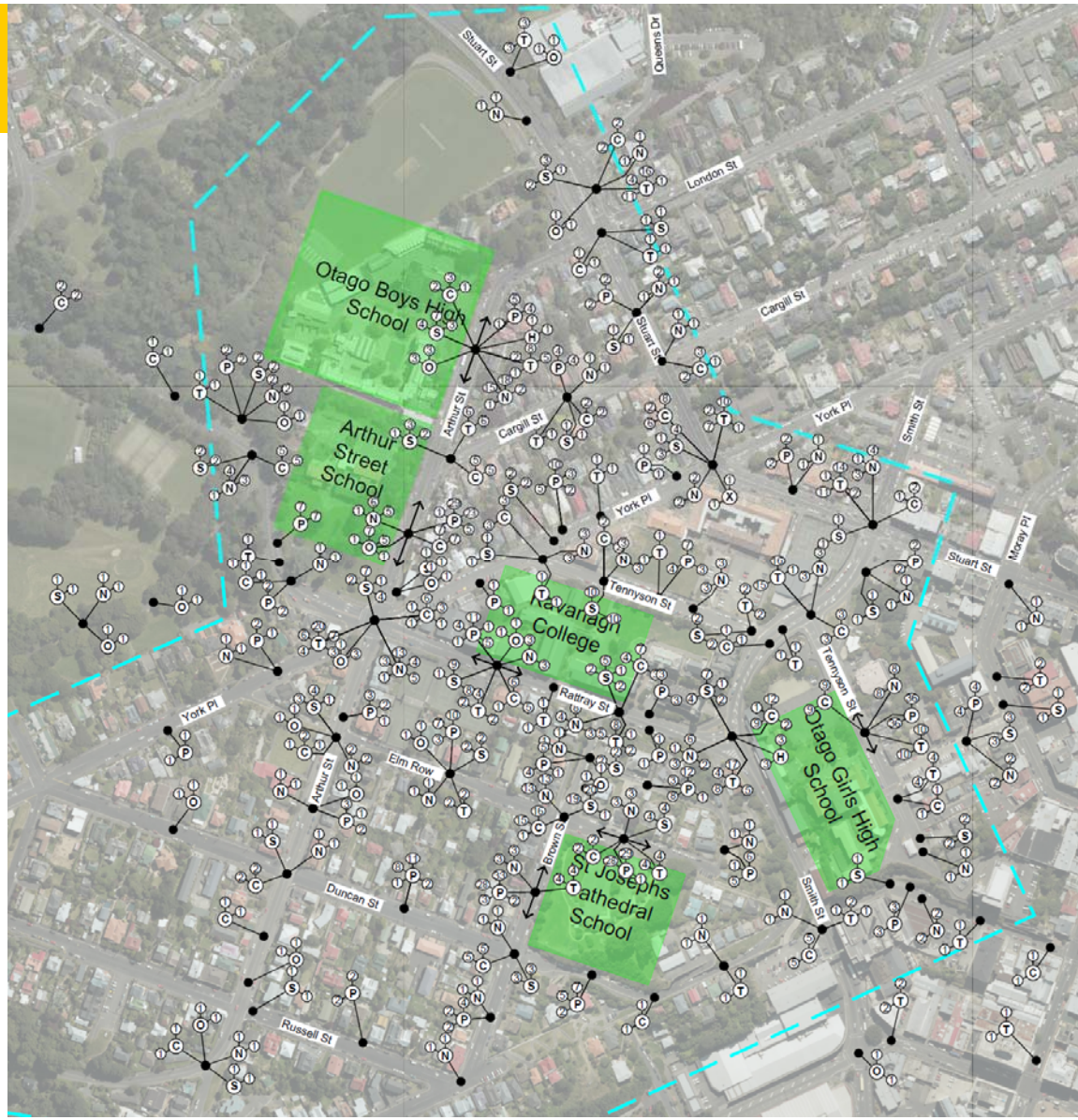
P – I have problems ***finding a parking spot*** here

S – I am ***concerned about my safety*** here

T – I am usually delayed by ***traffic/queues*** here

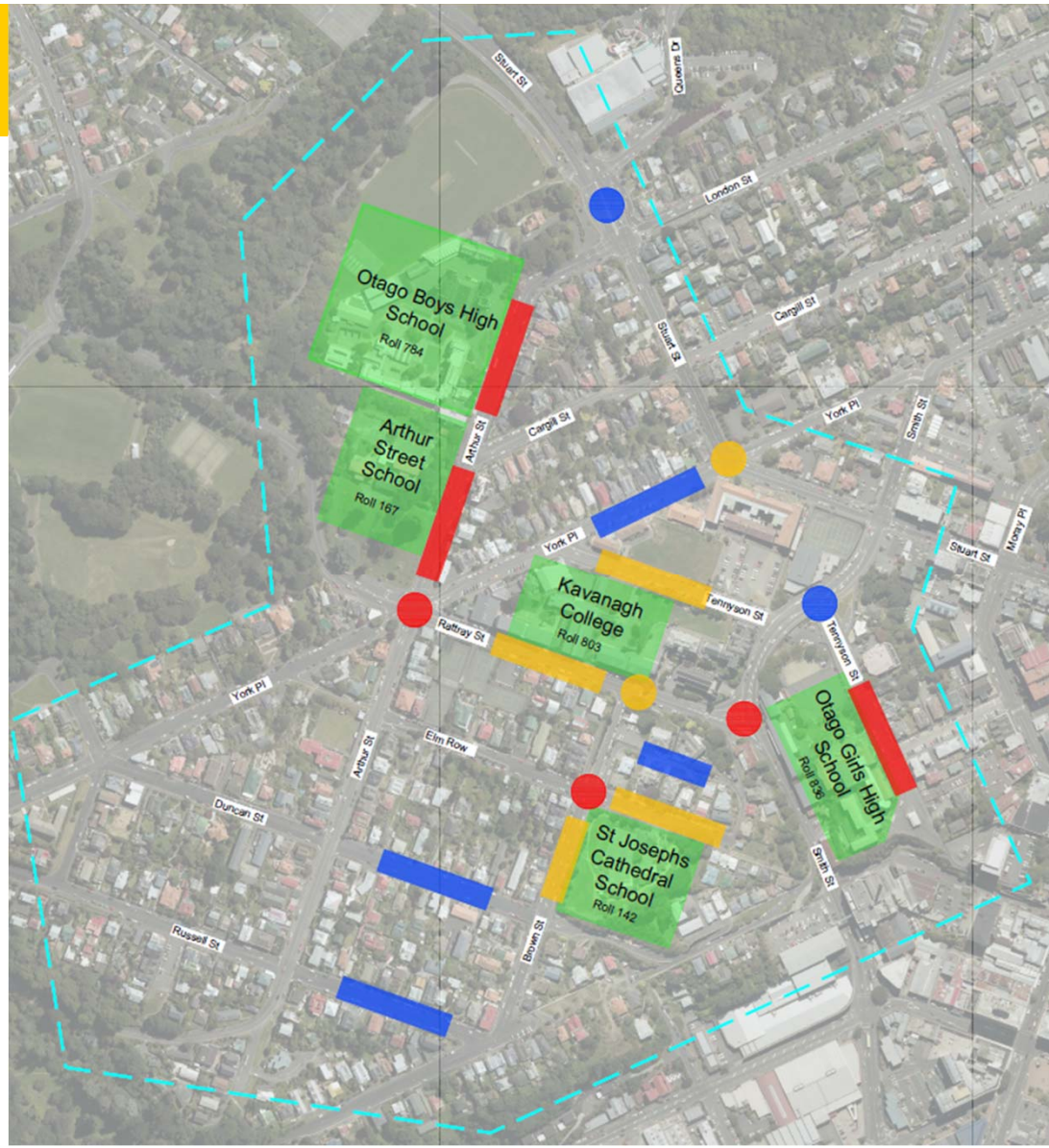
X – I have had a ***crash/collision driving*** here

O – I have some ***other issue*** here (explain overleaf)



Combined picture

- Certain sites and corridors
  - Prioritise treatments first



CODE LEGEND

Street	Intersection	
		Highest number of issues
		2nd highest number of issues
		3rd highest number of issues

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Typical issues – crossings

- Informal crossing observed at desire lines
  e.g. Smith St
- Long waits across Stuart St
- Lack of crossings along Arthur St
- Poor sight lines near Elm/Brown

Typical issues – parking

- Manage existing parking location/timing
- Improve parent behaviour at pick-up/drop-off
- Support Active Trpt to reduce parking demand

Toolkit of potential options

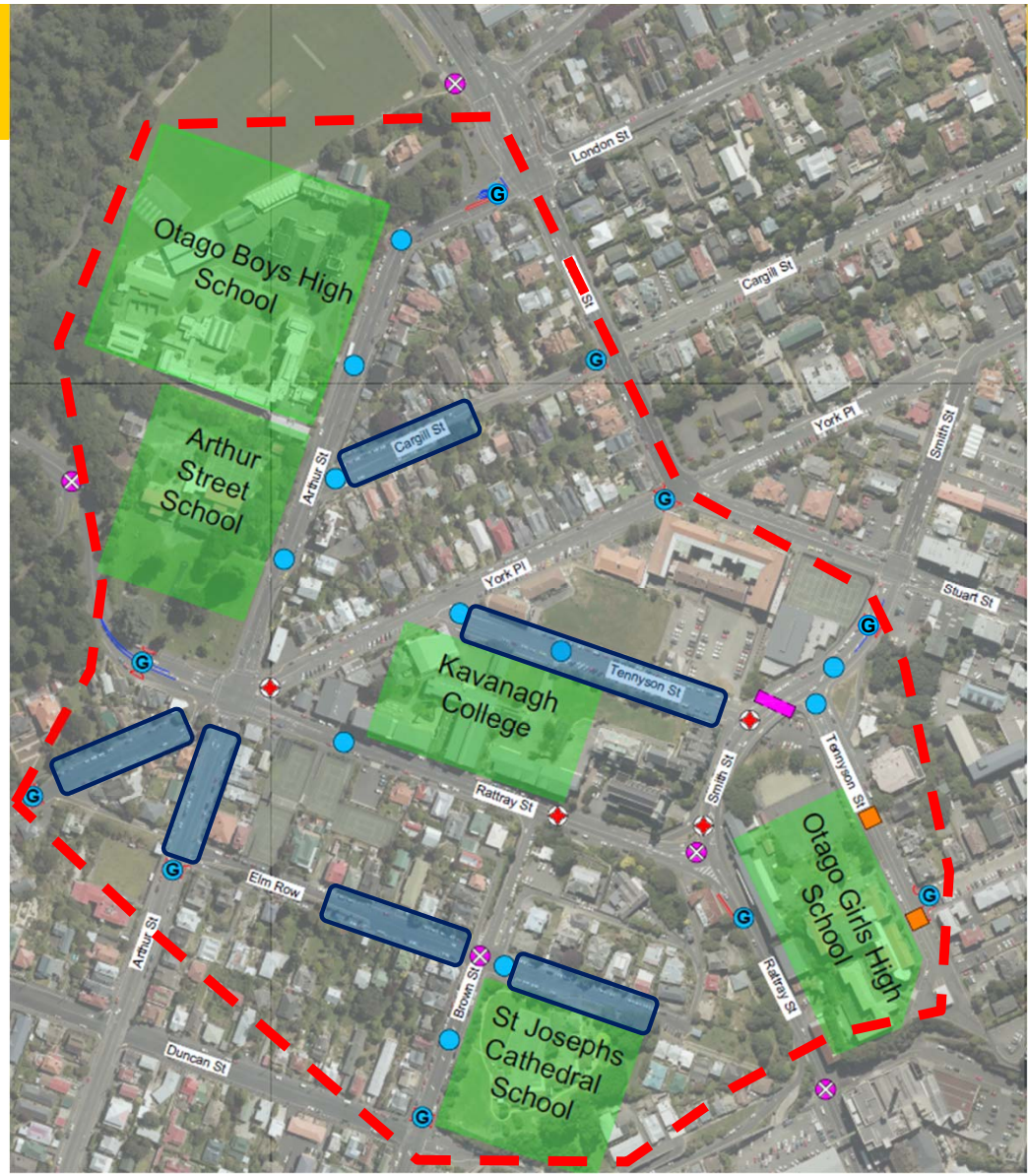
★★★★	★★★	★★	★
Very Good	Good	Neutral	Poor

Category	Treatment	Parking availability	Congestion	Pedestrian crossings	Safer traffic speeds	Encourage active modes	Traffic safety	Timeframe (years)
Manage parking	Angle parking (parking precinct)	★★★★	★	★★	★★★	★	★★	2
	On-street durations, prices, quantity, locations	★★★	★★	★★	★★	★★★	★★	2
	Off-street e.g. commuter parking buildings	★★★★	★★★	★★	★★	★★	★★	5
	Frog parking / increased enforcement	★★★	★★	★★	★★	★★	★★	1
	Reduce parking demand (TDM)	★★	★★★	★★	★★	★★	★★	2
	Static variable parking times (P5 + P240)	★★★	★★	★★	★★	★★	★★	1
	Dynamic electronic parking times	★★★	★★	★★	★★	★★	★★	5
	Parking rationalisation	★★	★★★	★★	★★	★★	★★	2
	Parking relocation (e.g. PUDOS on arterials)	★★★	★★	★★	★★	★★	★★	2
Access management	1 way streets	★★★	★★★	★★★	★★	★★★	★★★	5
	Intersection controls/design e.g. close legs / turn bans	★★	★★★★	★★★	★★	★★★	★★★	3
Pedestrian crossings	Grade separations - short term	★★	★★	★★★	★★	★★	★★	1
	Grade separations - long term	★★	★★	★★★★	★★	★★★★	★★	5
	High-friction pavement surface	★★	★★	★★★★	★★	★★★	★★	1
	Hold rails	★★	★★	★★★	★★	★★	★★	1
Pedestrian crossings and local area traffic management (LATM)	Raised platforms	★★	★★	★★★★	★★★★	★★★★	★★★★	2
	Central refuge islands / median islands	★	★★	★★★★	★★★	★★★	★★★	2
	Kerb buildouts	★	★★	★★★★	★★★	★★★	★★★	2
	Courtesy crossings coloured/textured surface	★★	★★	★★★★	★★★	★★★	★★★	2
	Formal zebra crossing markings	★★	★★	★★★★	★★	★★★★	★★★★	1
	Formal zebra crossing markings at all intersections	★★	★★	★★★★	★★	★★★★	★★★★	5
Streetscape	Area precinct signs	★★	★★	★★	★★	★★	★★	1
	40 km/h area permanent signs & precinct thresholds	★★	★★	★★★	★★★	★★★	★★★	1
	40 km/h area part-time speed signs	★★	★★	★★★	★★★	★★★	★★★★	1
	Streetscape enhancement/traffic calming	★	★★	★★★	★★★	★★★	★★★★	3
Access management	Part-time road closure	★	★	★★★	★★	★★★	★★★★	3
	Shared space streetscape design	★	★	★★★	★★★	★★★★	★★★★	3
Soft programmes	School travel planning & promotion	★★	★★	★★	★★	★★★	★★★	1
	School project / vision e.g. sustainability	★★★	★★★	★★	★★★	★★★★	★★★	2
Road space allocation	Improved cycleways	★	★★	★★	★★	★★★★	★★★	4
Traffic safety	High-friction pavement surface	★★	★★	★★	★★	★★★	★★★	1
Maintenance	Winter maintenance of footpaths	★★	★★	★★★	★★	★★★	★★★★	1

VIASTRAD

Proposed Treatments

- ‘Precinct’ approach for combined school area
  - Gateway treatments G
  - New crossing points
  - Upgrade existing crossings
  - Intersection improvements
  - Parking streets
  - Lower speed limit 30 40



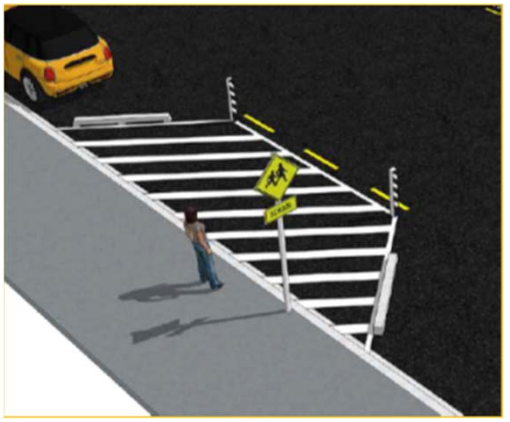
VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Levels of treatment

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Timing of options

- Year 0-1 (2018)
  - ‘Quick wins’ and 'Trials' in current financial year

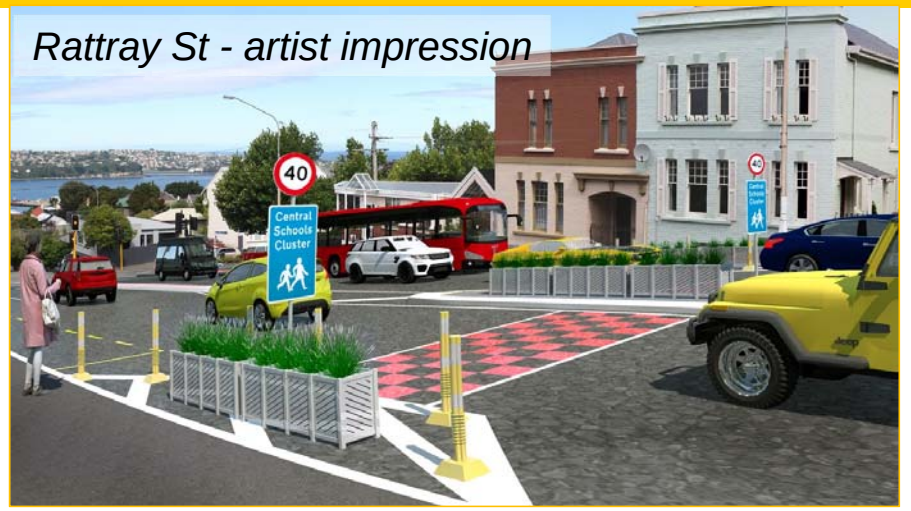


- Year 1-3 (2018-2021)
  - Formalising 'Trials' and improving crossing points

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Quick wins & Trials – “paint, planters & posts”

Brown/Elm roundabout - installed



Rattray St - artist impression

Smith St gateway - installed

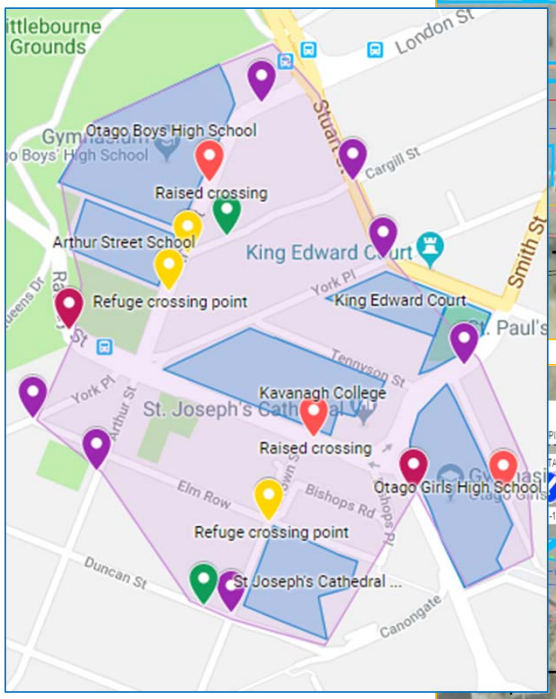
VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

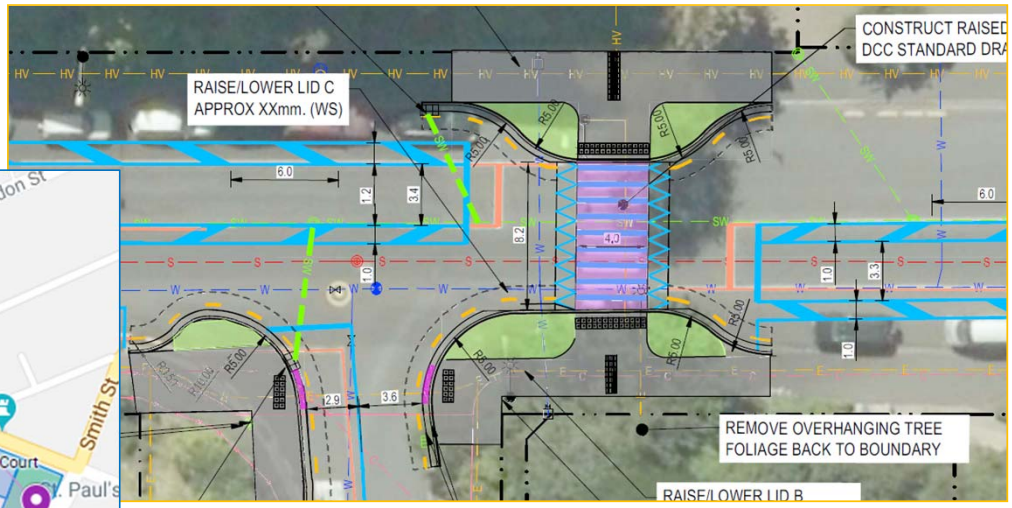
Quick wins/Trials - Consultation/Feedback

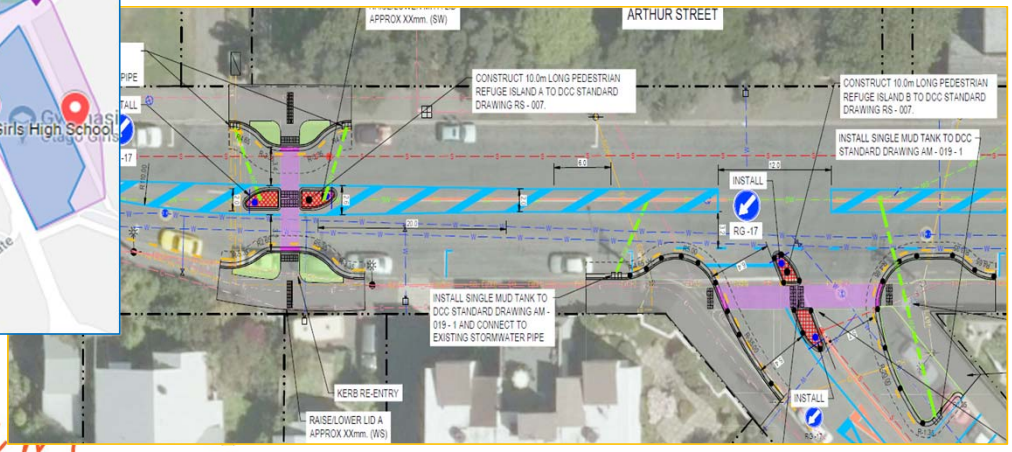
- Generally positive
  - Some initial confusion over red crossing surfacing
  - +ve feedback re. gateways and treating as a precinct
- By trialling options the public are more aware of what we're doing and why
  - They realise it's not permanent if not successful
- Schools and students very supportive
- Currently in the process of Speed Limit bylaw amendment
  - Change to 40kmh school zone
- Comments on speed include:
  - Extending school zone
  - Lower school speed to 30kmh
  - Make the speed restriction permanent
- Street speeds monitored
  - ~1-2km/h mean spd drop so far

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Medium Term







- Detailed design completed (16 sites)
  - Includes gateways, raised ped'n xings, and narrowing of intersections
  - Variable speed signs to be installed at all gateways (with speed radar)
- Initially use standard 40kmh school zone
  - Trial 30kmh zone?

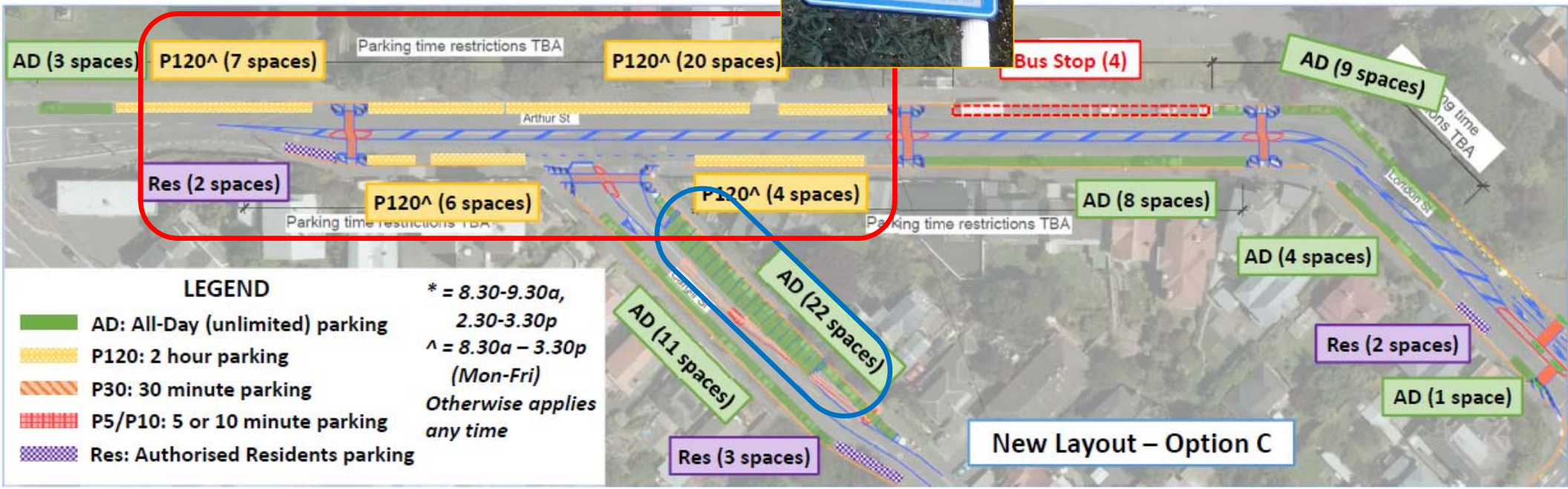
VIASTRADA

URBAN

DUNEDIN CITY COUNCIL

Parking reconfiguration

- 90° parking to create more spaces
- More focus on short-term school parking (up to 120 mins)
- Dynamic parking signs?



Conclusions

- A precinct approach can provide benefits to a whole area
  - More logical than treating schools individually
  - Easier to consult with stakeholders in one go (same messages)
- Final implementation will take time
  - Consultation/process for permanent/variable lower speed limit
  - Consultation/Implementing new parking layouts/restrictions
- ‘Quick win’ treatments provide some immediate relief
  - Already some speed reductions (~1-2km/h mean speed drop)
  - Good feedback from schools *(and little adverse press)*

VIASTRADA dcm URBAN DUNEDIN CITY COUNCIL

Thank you – Questions?

Glen Koorey
glen@viastrada.nz
@GKoorey

Hjarne Poulsen
hjarne.poulsen@dcc.govt.nz